# ENTOMOLOGICAL NEWS

## VOLUME LIII, 1942

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# ENTOMOLOGICAL NEWS

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# ENTOMOLOGICAL NEWS

VOL. LIII JANUARY, 1942 No 1

## Wooden-Walled Ant Nests (Hymen.: Formicidae).

By LAURENCE J. LAFLEUR, New York City.

The author has developed a type of formicary which has several advantages over types hitherto described, and which is suitable for temporary or permanent nests and for both large and small species of ants. It differs from older-type nests principally in the use of plywood in its construction.

One difficulty in the construction of formicaries is to have the glass cover fit snugly on top of the walls so that the ants do not escape through the crevices. This consideration becomes paramount when dealing with very small species, which manage to squeeze themselves into surprisingly small interstices in their efforts to escape or explore. The simplest method of producing a perfect fit is that developed by Santschi and described by Wheeler, where plaster of Paris is poured along the lines where walls and partitions are to be on a pane of glass used as a base, and quickly covered with another piece of glass whose under surface has been oiled. As the upper pane is pressed down, the plaster spreads into an even contact between the two panes, forming walls of regular height but irregular width, and with uneven vertical surfaces. It is desirable to place between the panes small pieces of glass or other material which will hold the panes at the proper distance apart.

The Santschi nest has the advantages of quick and easy production and of cheapness, and is reliable for the temporary housing of small ants, but it has several defects. First, it is available only for the smaller ants, as the panes are not usually more than an eighth of an inch apart and often less. Second, the method of manufacture gives highly irregular vertical surfaces, and, in places at least, very thick walls. In a

small nest, as this type necessarily is, these are not only unaesthetic but constitute an important waste of space. Third, if the plaster is quite liquid, the walls will be impossibly thick: if the plaster has considerable body when poured, it dries quickly and there is no time to make either a large nest or extensive subdivisions. Fourth, plaster cracks readily, and any attempt to alter the nest after the plaster starts to set is apt to end disastrously. Fifth, ants need a great deal of moisture, and if kept wet a small piece of plaster will disintegrate. Finally, plaster is a dirty material to work with, for the ants as well as for the myrmecologist, and there are serious difficulties in providing the ants with water uncontaminated with plaster. In consequence, the author prefers some other type of nest for all but the smallest ants, and even in their case considers some modification desirable.

A second way to attain fit is by the use of compressible materials for the walls. The Fielde nest and Wheeler's modification, where towelling is used, is the best example of this type of construction. It is a satisfactory nest for large ants—even elegant in some respects—but it is difficult and expensive to make, and unsuitable for medium and small species, since the latter can make their way through the interstices. Even large ants may escape if the towelling, sponge, cotton, or similar material is not perfectly fitted and of even thickness: even a slight imperfection may be fatal, since a glass top is not sufficiently heavy to do much leveling of irregularities. Finally, this type of nest gets dirty quickly, and entails considerable trouble in replacing the towelling.

The simplest and most suitable way of ensuring a good fit is to use a material which is commercially available in accurate thicknesses, and the author has had much success with plywood, although doubtless a plastic will eventually find its way onto the market that will be still better. A good quality of plywood is reasonably warp-proof, perfectly even in thickness, and easily cut with a jig-saw into any arrangement of outside walls and partitions of any desired complexity. These walls and partitions are made in one single piece, and a variety of

wall-sets may be stacked together in very little space while awaiting service. Such nests are satisfactory for all large species, most medium-sized, and some small; depending in part on the size of the nest and quality of the plywood, and partly on the species itself. Only experience will show which species need special treatment, for size alone is not a reliable guide: *Nylanderia vividula,* for example, though only half the length of *Tetramorium guineensis,* will not go through cracks sufficient to allow the larger species to squeeze through. Where the fit of glass to plywood is not accurate enough for a given species, the glass may be sealed to the wood by the use of wax or some similar material. In this case, of course openings must be provided in the walls for the introduction of food and water.

Wall-sets are made in a few standard sizes, so that all wall-sets and glass panes are interchangeable. The author has made them in three sizes, about 8 by 12, 6 by 8, and 4 by 6 inches; and in three thicknesses, one-eighth, one-quarter, and three-eighths of an inch. For permanent nests it is desirable to select a thickness such that the ants in the nest can touch the glass cover above them; in this way they combine sufficient room with the attainment of a feeling of security in the ants which they seem to have when they recognize that they are covered: for field work the one-quarter thickness is preferable, since it is sufficiently thick to take any ant as a temporary measure, and not inconveniently thick for the smaller species. For temporary nests it is sufficient to place a suitable wall-set upon a glass or plywood base, and cover with glass. For permanent nests the wall-set is glued, nailed, or screwed to the base.

Except when the formicary is to be used on the stage of a compound microscope, the author prefers a wooden base; partly because it permits the use of nails and screws, partly because it gives a good footing to the ants when used without further covering, and partly because it permits the sinking of water and food containers into the base. Three-eighths inch plywood is used for the base, no matter what the wall-thickness may be. Either a glass or a plywood base may be covered with paper before being used, the color of the paper being

chosen so as to provide a contrasting background for both the adult ants and the young of whatever species is to be kept in the nest, but the use of paper is rarely advantageous if the wooden base is used.

When one-quarter or three-eighth inch walls are used, they may be nailed in position or preferably screwed from the base side. The advantage in the use of screws is that they aid in preventing warping, and that they may readily be removed for the interchange of wall-sets or the replacement of the paper; which, in this case, is a single sheet inserted between the base and wall-set and held in place by the screws joining the two latter. With the one-eighth inch wall-set, or when the one-quarter is to be used for field work where very small ants may be collected, the formicary should be put together with glue instead of screws or nails, since the latter distort the upper surface of the wall-set sufficiently to permit very small ants to escape. A glue must be selected, such as casein for example, which will not soften when wet and which does not make use of an ether or acetone base, which, in the confined space of the formicary, gives off vapors sufficient to kill the ants, even after drying for as long as six months. Glue is necessary for the one-eighth inch nests, and it is also perfectly suitable for the larger ones.

Except when special arrangements are made, access to the interior of the nest is obtained by sliding the glass cover so that one edge or corner is exposed. Consequently, food and water receptacles should be located in the corners when possible, and otherwise along the sides. Metal or other water-tight receptacles may be used, or a receptacle may be hollowed out in the wooden base and waterproofed with wax or varnish. In any case it is preferable that the container be sunk into the wooden base of the nest. Chiseling out a section of the plywood is a very simple operation, and food and water are thus kept sanitarily isolated, and where they are not so apt to spill over onto adjoining parts of the nest. Furthermore, this operation enables more water to be kept in the nest, so that it need not be renewed too often. The water container is made

fairly large, say two inches in diameter for an eight by twelve nest, and an eighth to a quarter of an inch in depth. It is sunk to be flush with the base, and is filled with cotton which is kept thoroughly wet. For very small nests smaller containers must be used, and they have to be filled more often—once a day or even twice a day instead of twice a week, depending upon atmospheric conditions. Food containers are similar to the water containers, except that they are much smaller, and may even be omitted altogether. There may be one or two in a nest, and they should be located some distance from the water container when possible. For a fully developed nest, the food and water may be at opposite corners, but in an incipient one, both must be near the section used by the queen.

Opening the nest to renew the food and water supply becomes a more difficult problem as the number of workers in the nest increases, and with species that become alarmed easily or are of persistently exploratory habits. In these cases, Janet's device may be borrowed, and the glass cover perforated with conveniently placed holes, each with its individual cover: or a larger pane with one hole may be prepared and slid into place over any part of any nest where access is desired. A second method has been devised for the nests of the General Biological Supply House, where pipettes or medicine droppers are inserted in holes in the wall. This ingenious device permits the water to be replenished from the dropper, which need not be itself removed more than once a week. Adaptations of this device to nests with walls of lesser height are possible. The third method is to use a porous material for some part of the nest. Janet used a heavy porous base, which was quite suitable even if somewhat cumbrous. Water was kept in a reservoir in one end, and the whole block remained moist. I have used a modification of this method by carrying a few fibres of cotton through a hole in the wall, which was then sealed with wax around the cotton. The cotton is allowed barely to protrude on the outside, and by touching water to this protruding part, all the cotton inside the nest may be kept as wet as is desired. The sole objection to this method is that

it permits more evaporation from the exposed surface, and hence requires more frequent replenishment of the water, than do nests where all the moisture is protected on the inside. In all other ways, however, this method is the simplest and the best; and it is the only one suitable for nests to which the cover is sealed. Of course it is necessary that the wood be waterproofed wherever it may come in contact with the cotton.

The use of plywood for walls enables the partitions to be made thinner and more complex than in any type of nest previously described, and there is a real advantage in the use of complex subdivisions in a nest. In their natural nests, ants may have a few large halls, but always have a complex system of small chambers and connecting galleries; and while ants readily adjust themselves to abnormal conditions, normal circumstances should be preserved as far as is consistent with easy observation and care and with the particular experiment being conducted. Furthermore, complexity is useful in experiments and observations on many aspects of ant life and psychology, such as orientation within the nest, communication, and parasitism.

A few special adaptations of the nest may be mentioned. An inner cubicle, a *sanctum sanctorum,* is almost always selected by the queen for her own residence, and in larger nests it may be just as well to provide one. If the sides of the nests are made perfectly straight, the entrances of two nests may be placed together and communication between the nests is secured without further elaboration. A slip of paper between the nests then allows the communication to be shut off at will: this is particularly useful when experimental set-ups are devised where entrances and exits are to be controlled. If it is desired to allow the ants access to the world, but to prevent their migration, holes may be bored in the walls large enough for the workers but too small for the queen: a similar device will permit observations of the parasitism of *Solenopsis* on larger species. In experiments on affiliation, cloth or wire partitions may be used within the nest. It is also possible to arrange interior galleries which can be closed from the outside.

It is frequently convenient, especially with smaller nests, not to make very small panes, bases, and wall-sets, but to make a single wall-set serve for two nests. When working with queens alone, twelve or more compartments may be constructed in one piece, and this form of construction, with a sealed cover, will also be found very appropriate for field use.

And finally, the question of cost may be considered. While cheapness may not be the primary merit in an article of research, it is not negligible either, and the type of nest described in this article is cheaper than the Santschi nest, incomparably cheaper than any other type. At present prices, forty cents for glass and thirty for wood is sufficient to make four of the largest nests. Sixteen of the smallest can be built for sixty-five cents. The cost of glue or nails, and of varnish or wax, is negligible; and the only tools to which access is necessary are a jig-saw and chisel. With any sort of a work-shop available, dozens of these nests may be turned out in an afternoon.

## Types vs. Types.*

By Curtis W. Sabrosky, Michigan State College,
East Lansing, Mich.

The appearance in recent years of two compendia of the terminology of types[1] has called attention to the apparent complexity of this subject in the biological sciences. An excellent critique by Williams[2] pointed out the desirability of greater simplicity in referring to type material. Beyond this, a few further comments may be in order.

The large number of recorded terms (233 entries by Frizzell; 108 by Fernald, who included only terms applicable to

* Journal Article No. 563 (n. s.) from the Michigan Agricultural Experiment Station.

[1] Frizzell, Amer. Midland Nat., 14: 637-668, 1933; Fernald, Annals Ent. Soc. Amer., 32: 689-702, 1939.

[2] Williams, Annals Ent. Soc. Amer., 33: 621-624, 1940.

individual specimens) is unnecessarily deceiving to the casual observer. Both lists contain many names (a) whose usefulness is confined to botany, ecology, genetics and general zoology, (b) whose special application in paleontology may perhaps be defended on the grounds of the particular condition of their type material, or (c) whose meaning is obviously the same (e. g., combinations like alloparatype, paraallotype and, parallotype, and endings of—type,—typ, and—typus). Eliminating expressions in the above categories, there remain comparatively few terms which appear essential to the taxonomic zoologist for the accurate recording of the basic material for each species.

The introduction of the question of priority into the matter of terminology appears to be an undue complication. Terminology is language, and language is preeminently a matter of usage and not of priority. If equally understandable, the more euphonious and the more widely disseminated word may be expected to prevail over the less so, even though the latter have chronological priority. The principle of priority in generic and specific nomenclature is quite another matter, being a considered plan for stability in the binominal surnames of organisms.

In particular, there appears to be no need for going far afield in establishing priority in terms. Why replace the simple word *homotype* with the more awkward *homoeotype,* merely because the former is preoccupied elsewhere in biology? Indeed, the fact that there is another use for homotype need not preclude its usefulness for specialists in taxonomy, any more than the use of *genotype* in genetics should cause taxonomists to abandon their long established term in favor of generotype.

The published lists contain numerous examples of the extent to which the naming of original type material has been carried. Even more complicated are the various names revolving in the orbits of topotype and metatype. The possible combinations of these with the simple arrangement of holotype—allotype—paratype are numerous enough, without introducing further frills.

Lastly, one may question, with Williams, the value of proposing "type" names for soldier castes, worker castes, larvae, pupae, etc. After all, they can have no other scientific name than that of their species. There is already a type for the species (perhaps even a number of different kinds of "types"!). Adequate description and preservation of biological forms would seem to be sufficient without adding "type" names to the already overburdened terminology.

In spite of criticisms, such compendia are extremely useful as reference works, like dictionaries, even though they contain many superfluous terms. As reference works, it is to be regretted that neither is perfection in itself, though others will thereby be stimulated to be alert for omissions and corrections. No attempt has been made to check the literature in detail, but it may be appropriate to record here a few items which do not appear in either list.

1. *Allotype*—The type of the female sex, even if the only known specimen. Knowlton and Rowe: Annals Ent. Soc. Amer., Vol. 27, p. 582, 583, 1934.

2. *Diatype*—The type of a genus substituted for a homonym. Lindsey: Annals Ent. Soc. Amer., Vol. 18, p. 76, 1925.

3. *Gonotype*—All descendants of the type (and allotype) when these were bred. Sturtevant: Annals Ent. Soc. Amer., Vol. 9, p. 324, 1916.

4. *Metamorphotype*—"A comprehensive term for the specimen and its parts which serve as proof of an association of stages in the life cycle separated by a metamorphosis". M. J. Milne: Jour. N. Y. Ent. Soc., Vol. 46, p. 435, 1938.

5. *Paratopotype*—Used by Viereck: Proc. Ent. Soc. Wash., Vol. 11, p. 210, 211, 1909. (Antedates Alexander, 1916).

6. *Phototype*—Used by Pierce: Proc. Ent. Soc. Wash., Vol. 8, p. 61, 1906 (1907). (Antedates Kellerman, 1912).

7. *Sexitype*—Probably refers to the holotype and allotype together, as for example, "sexitypes in my collection". Blaisdell: Bul. U. S. Nat. Mus., vol. 63, p. 58 et al. 1909.

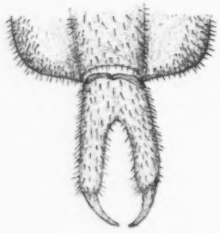
## A New American Centiped of the Genus Scutigera (Chilopoda: Scutigeridae).

By RALPH V. CHAMBERLIN, University of Utah.

The centiped described below is the third species of the genus *Scutigera* to be recorded from the United States. The other two species are the familiar "house centiped", *Scutigera coleoptrata* (Linne), more commonly known in this country as *Scutigera forceps* (Rafinesque), and *Scutigera lincesi* (Wood), described many years ago from Texas. The new species, from Arizona, differs obviously from the other two in the uniform coloration of the body, longitudinal stripes, so conspicuous in them, being wholly absent from *S. homa.*

**Scutigera homa,** new species.

Dorsum a light ferruginous yellow without trace of stripes or other markings. Venter pale, in part nearly white of a slightly greenish tinge. Legs also pale, the proximal joints of a faint greenish tinge, entirely without annuli or other markings. Antennae ferruginous yellow.



*Scutigera homa,* new species. Gonopods of female, ventral view.

First division of antennae consisting of 80 articles, of which all excepting those at ends are short and very short; second division consisting of about 165 articles; of a third division of which the apical portion is missing 20 articles remain.

First division of tarsus of leg I composed of 14 articles, the second division of near 36. In the second legs the first tarsal division has 13 articles, the second 32. In the third legs the first division of tarsus has 24 articles, the second 17. In the fourth the numbers of articles are 11 and 28 respectively. In the fifth, 9-14 and 29. In the sixth, 8 and 25. In the seventh, 9 and 27.

Stomata short, reaching caudal margin and projecting slightly into the caudal emargination. Caudal margin of last tergite emarginate.

The gonopods of the female as shown in the accompanying figure.

Length, 15 mm.

Locality.—ARIZONA: 22 miles southeast of Ajo. *Holotype*: One female taken by S. and D. Mulaik on Jan. 3, 1941, in the writer's collection.

## Weevils (Coleoptera, Curculionidae) Affecting Chufa (Cyperus esculentus).

By A. F. SATTERTHWAIT,
Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

### INTRODUCTION[1].

The present treatise on the weevils affecting chufa represents work incidental to the investigation of the weevils of the genus *Calendra* (*Sphenophorus*), agriculturally known as billbugs. It is not the result of the study of insects from the standpoint of chufa as an agricultural crop. However, as the chufa is a common host plant of several species of billbugs and probably the preferred host plant of *Calendra callosa* (Oliv.), of *C. venatus* (Say), and of *C. destructor* (Chitt.), this plant has been subjected to careful scrutiny in the Mississippi Valley and some of the Eastern States.

[1] The writer wishes to thank W. H. Larrimer and others in the Bureau of Entomology of the United States Department of Agriculture for the many routine favors rendered at the time these studies were being made, especially in securing determinations of insects affecting chufa. He wishes to thank Francis Pennell, of the Academy of Natural Sciences of Philadelphia, Pa., for the helpful information that *Cyperus esculentus* has a scaly underground root stock, upon which the root nut develops, and is thus readily distinguished from *C. strigosus*, which has neither root stock nor nut; also the Missouri Botanical Garden, particularly J. M. Greenman and John Kellog, and J. A. Drushel of New York University, for determining particular specimens. He wishes also to thank Margaret M. McDonough for able and sympathetic assistance in assembling data and Joe S. Wade for information concerning chufa insects from official records.

During 1931, calls for information concerning the control of insects affecting chufa were received from Henry Dietrich and J. P. Kislanko in the service of the State Plant Board of Mississippi; from Tom O'Neill, State entomologist, Atlanta, Georgia; and from J. M. Robinson, of the Alabama Polytechnic Institute, Auburn, Alabama.

BARINUS SQUAMOLINEATUS Casey.

Immature forms of this small weevil were collected about Lafayette, Indiana, August 12, 1916, incidental to the investigation of corn billbugs. Three stumps of *Cyperus esculentus* were planted in each of a series of 5-inch flowerpots for the purpose of rearing the destructive billbug (*Calendra destructor*). On October 4, the contents of a cage were sifted and an adult weevil, *Barinus squamolineatus* Casey as determined by L. L. Buchanan, was found under circumstances indicating that it had developed in a galled flower stalk. It may be that this species causes the same galling excavation of the stem as is produced by *Sibariops confusa*. Two immature forms of *B. squamolineatus* were taken at Medaryville, Indiana, August 16, 1916; one adult issued October 5 and another October 18, and both were determined by L. L. Buchanan.

BARINUS CURTICOLLIS Casey

A pupa of a little weevil was collected at the base of a chufa stalk at Morehouse, Missouri, September 23, 1918. The adult issued September 26, and was determined by L. L. Buchanan as *Barinus curticollis* Casey.

This species was reared also from *Cyperus erythrorhizos* Muhl., collected at Tallapoosa, October 17, 1918, in the pupal stage, with parasite larvae in cocoons; at Charleston, September 6, in the adult stage, and with parasite cocoons; and at Woodrow, August 20-21, 1919, all in Missouri.

SIBARIOPS CONFUSA (Boh.)

Eggs, larvae, pupae, and adults of small weevils, *Sibariops confusa* (Boh.), were found rather commonly in chufa. The larvae developing in the flower stalks make the stalks bulge considerably at the base, as if the stems were galled. This appearance is conspicuous and readily enables one to find the

infestation. Specimens proving to be this species were taken on October 30, 1915, in *Cyperus esculentus* at West Lafayette, Indiana, observed as pupae on November 2, and yielded adults November 18; a specimen was also found at West Lafayette, July 14, 1916, presumably as a larva, ultimately yielding an adult of *S. confusa.*

The following collections were made in Missouri: At Anniston, September 8 and October 17, 1918, 3 adults in their larval excavations; at Charleston, presumably adult when collected, August 8, 1917, 4 larvae and 2 pupae, of which 1 larva became adult by September 14, and 1 pupa by August 14; at Charleston, 4 males and 5 females which issued July 12, 1918, another male which issued by July 26, and another by July 31; at Gray Ridge, August 23, 1918, 1 adult, 1 pupa, and some larvae, of which one larva became a pupa by August 30 and an adult on September 15, and from another collection on the same day 1 adult which issued by August 31—total, 4 males, 1 female; at Newburg, 6 adults which issued between September 20 and October 1, and 3 more adults which issued by October 8; at Ten Brook, 7 adults which issued by October 27, and 3 which issued by November 12; at Thayer, September 6, 1917, immature stages from which 1 female issued by September 27, 1 male and 2 females by October 8, and 1 female by February 20. All these were determined by L. L. Buchanan.

BARILEPIS GRISEA (Lec.)

Several larvae of the diminutive *Barilepis grisea* (Lec.) were received in crowns of chufa collected by Elmo Ragsdale, County Agent, Brunswick, Georgia, on October 6, 1931, and sent the writer by Tom O'Neill, State entomologist, Atlanta. Specimens were collected by the writer, in company with Henry Dietrich, Mississippi State Plant Board inspector, in a cultivated field near Lucedale, Miss., December 12, 1931.

There was no evidence of gall formation as a result of the work of any of these larvae. In each case the larva was in a hibernation cell in the crown of a chufa stalk. One of the Georgia larvae was placed in an individual cage on March 2. Pupation occurred between March 31 and April 4. The de-

scription of the *pupa* follows:

Length 3.69 mm., width 1.75 mm., pronotal width 1.31 mm. Rostrum reaching almost across anterior tibiae. Head with a pair of large setae some distance from base of rostrum but fairly in line with rostral setae, and 2 fine setae on sides between this pair of large setae and rostrum; a pair of setae of intermediate size at base of rostrum, 2 pairs of small setae between this pair and antennal fossae, and another pair of small setae about half way between fossae and apex of rostrum. Apex of rostrum concave above; antennal club touching fore femur.

Apices of wings, elytra, hind femora, and hind tarsi forming an almost straight transverse line across pupa, femora extending farthest caudad, tarsi next. Thoracic setae consisting of 4 anterolateral pronotals, 4 postlateral pronotals, 6 mediopronotals, 4 spiraculopronotals (above edge of disk near thoracic spiracle), 4 mesothoracic setae, and 4 metathoracic setae.

Setal tubercles of seventh tergite large, those next median line much larger than corresponding pair of eighth tergite, with bases larger than bases of those of ninth tergite. The dominant seta on each side of the ninth tergite is actually a heavily chitinized spine at the apex of the large fleshy tubercle which bears a secondary small seta. By April 15, the compound eyes appeared brown, the rest of the pupa white; by April 18, the compound eyes were black, the rest of the body white.

By April 21, the adult had issued. It was determined by Mr. L. L. Buchanan to be *Barilepis grisea* (Lec.).

On February 29 a larva was segregated from the mass collection from Mississippi and placed in an individual cage. It pupated between April 18 and 21. A description of the *pupa* follows:

♂. Length 3.63 mm., width 1.84 mm., pronotal width 1.39 mm. Rostrum long, reaching well beyond fore tibiae. Setal arrangement on rostrum as in the Georgia specimen except that there are 3 pairs between basal setae and antennal fossae.

Thoracic appendages forming a transverse line, as in the Georgia pupa. Thoracic setae arranged essentially as in the Georgia pupa.

Caudal setae about 6 on the seventh tergite, 2 on the eighth, and about 6 on the ninth, 2 of the last being large, coarse, and fleshy. By May 2, the compound eyes were pale brown, defi-

nitely darker by May 4, and black by May 5, when the tips of the mandibles were red.

The adult issued between May 6 and 7, making the duration of the pupal stage between 15 and 19 days.

In the *adult* stage the body is oblong, suboval, densely clothed with large scales above and beneath, the beak rather short and arcuate. The antennae are somewhat short, with a relatively large, short, and ovate 4-jointed club, which is as long as the preceding 6 joints of the funicle; the first funicular joint is barely as long as the next 4; the anterior coxae are separated by more than their own width; the prosternum is flat, unarmed in the male; the scutellum is quadrate, narrow, and nude.

The specimen described had a length of 3 mm. and a width of 1.35 mm. Its general color above was piceous, with rufous legs, the scales being almost white.

Two *eggs* were obtained July 20, 1932, from parents reared from larvae from the mass collection from Mississippi. A few eggs were laid later, but one of the first two eggs yielded an adult May 16, 1933. This egg was laid at the edge of the membranous part of the leaf sheaf. It was 0.67 mm. in length and 0.25 in width or thickness. A tuber was cut in halves, the egg placed in a niche in one, and the halves bound together with paper and laid in a 2-ounce tin cage with damp soil. It hatched by 7:50 P. M., July 25, the time required for incubation of eggs of this species probably being about 7 days.

At the time of hatching the *larva* was about 1 mm. in length and its head width 0.9 mm. It was left in the tuber in which it hatched until August 6, when it was placed in a fresh tuber. Six hours later it was found that the larva was not feeding in the root nut, whereupon it was placed in a leaf-base cup in a growing chufa plant in a 25 by 100 mm. vial. This plant was growing from a tuber planted in a little soil in the box. Between 3 and 4 hours later the larva fell from the leaf sheath to the soil and disappeared. On August 8, it was found inside a decapitated crown not showing at the surface of the soil at the time the larva was placed on the plant. At this time the larval head width was 0.25 mm. The larva was placed in a 9 by 35 mm. vial containing a chufa tuber pared down to fit the

vial. This little vial was then placed in the larger vial with the growing chufa plant. On August 10 and subsequently the larva was observed through the glass in its excavation in the tuber. On April 25, 1933, it was obviously in the prepupal stage and by April 29 it was a pupa.

The duration of the larval stage was between 276 and 280 days. As the adult issued May 16, the duration of the pupal stage was between 16 and 19 days. The period from oviposition to the issuance of the adult covered between 299 and 304 days.

(To be continued.)

## A New Genus and Species of Coleoptera (Chrysomelidae) from Southwestern United States.

By BURDETTE E. WHITE, Merced, California.

On a recent collecting trip into the desert region of Southern California, the writer discovered a tiny species of Chrysomelidae (Subfamily Galerucinae) apparently feeding on some part of the blossoms of a species of *Rhus* (Sumac). Having a certain familiarity with this coleopterous family, and not recognizing one of our described species in this diminutive form, he directed considerable energy in its pursuit that resulted in the capture of twenty-eight specimens. Subsequent study proved this insect to represent a new species and a new genus, which in the opinion of the author, must constitute a new tribe —Serraticollini—and is tentatively placed preceding the tribe Luperini. During the course of study germane to this problem, the writer found six specimens strikingly similar to the above beetles among some material received for identification from F. H. Parker of Globe, Arizona. Careful comparison of the California and Arizona specimens show that they are abundantly distinct. It would seem peculiar that two species of such an unique character should be unknown to science; however, they are early season forms, probably depending on the blossoms of their host for their livelihood, a fact which may have contributed to their previous obscurity.

The writer wishes to express his sincere appreciation for

assistance received from Mr. J. J. du Bois of Turlock, California, Mr. F. H. Parker of Globe, Arizona, and Dr. E. Gorton Linsley of the University of California at Berkeley.

**SERRATICOLLIS** new genus.

Elongate, parallel, sparsely pubescent above and beneath. Head four-fifths as wide as greatest width of pronotum, eyes broadly oval, front not carinate between the antennal insertions; antennae feebly clavate, attaining the basal third of elytra; segments subequal in length, 8th, 9th, and 10th segments perceptibly shorter; the ultimate segment a little longer, the apical five segments noticeably but not strongly tumescent, the apical segment fusiform. Pronotum slightly longer than wide in

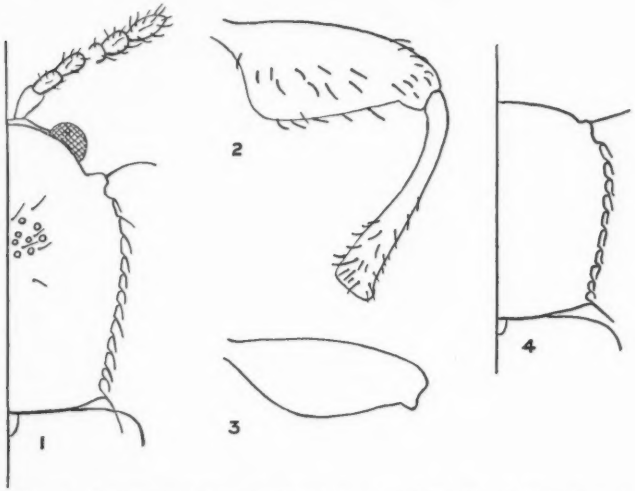



Fig. 1. Pronotum of *Serraticollis rhois* n. sp. (♂); Fig. 2, Mesothoracic femur of *S. rhois* (♂); Fig. 3, same for *S. parkeri*, n. sp.; Fig. 4, Pronotum of *S. rhois* (♀).

male, quadrate or feebly transverse in female; narrowest at base, gradually widening to apical third and then gradually narrowing to apex; apical angles forming prominent, blunt denticles, basal angles with smaller acute teeth; base margined,

a transverse impression near base producing a moderate transverse ridge between basal and ante-basal impressions; lateral margins finely serrate; apex rounded, anterior margin obscure; in the male the apex is moderately, arcuately produced over the vertex of the head. Elytra elongate, parallel-sided; epipleura nearly vertical, reaching to apex; surface coarsely punctate, the punctures arranged in closely approximate striae producing relatively narrow intervals, the intervals with a row of minute setigerous punctures, the setae arranged in a row, one seta in width alternating with the primary striae. Anterior coxal cavities closed behind, coxae realtively widely separated by prosternum. Femora all subequally tumid, tibae curved and more slender near base, all tibae unarmed; first and second tarsal segments subequal on all legs; claws appendiculate, divergent.

*Genotype*: *Serraticollis rhois* n. sp.

To compare *Serraticollis* with any known North American genus would only lead to confusion. It apparently has no close relative in our fauna. In fact, it appears out of place in the subfamily Galerucinae and seems to be as closely related to Sagrinae and Orsodacninae. Later studies including all the Chrysomelid genera may result in changing the position of *Serraticollis* possibly to another subfamily; but the margined pronotum places it for the present in Galerucinae. In Bradley's "Key To The Genera Of N. A. Beetles", 1930, *Serraticollis* would key out to the tribe Monoleptini on the basis of the closed anterior coxal cavities. Its affinities with this tribe, other than the coxal character, are extremely remote and the proposed new tribe would appear to be amply justified. The sexes are definitely dimorphic as regards the structure of the pronotum.

**Serraticollis rhois** new species.

Size small, elongate, parallel, rufotestaceous; antennae, legs, and sometimes pronotum slightly lighter; pronotum sparsely covered with coarse punctures at base, more densely punctate near apex, with a secondary system of fine, setigerous punctures. Average length, 2.25 mm.

♂ : Head rufotestaceous, darker on the vertex, sparsely punctate with small setigerous punctures, vertex strongly alutaceous; antennal sockets approximate, separated by half the length of first antennal segment; a small, median, circular impression lies just above and between the sockets; clypeus broadly rounded across apical margin. Antennae extending to basal third of elytra, moderately clavate, rather densely clothed with whitish setae except basal segment which is noticeably less setigerous.

Pronotum coarsely sparsely punctate on disc, more densely so near apex, smaller setigerous punctures sparsely placed among the primary punctures, the setae moderately long, fine and closely appressed; ante-basal impression strongly developed; margin minutely serrate, the denticles each bearing a seta, the seta of the four angular denticles relatively long; the apical margin of pronotum produced as a hood which does not contact the head beneath but forms a shallow cavity with the apex of pronotum as a roof; the side margins are subparallel with the greatest width at apical third. Scutellum flat, faintly alutaceous with a few minute setigerous punctures; broadly rounded apically.

Elytra elongate, parallel, rufotestaceous; surface slightly depressed near basal fourth, humeri well developed; surface with relatively coarse punctures arranged in ten well defined, even, closely placed striae and a short scutellar stria on each elytron, the seventh also short, not reaching near base; the intervals with a single row of minute setigerous punctures, the setae whitish, long and directed caudad, forming even rows one seta wide, these rows alternating with the coarsely punctured striae.

Body beneath fuscous, the prothorax and legs rufotestaceous, meso-thoracic, meta-thoracic, and abdominal sternites alutaceous, sparsely covered with minute setigerous punctures; prosternum smooth and shining at least over apical half; middle femora strongly, abruptly constricted on lower margin near base; last ventral segment with a crescentiform genital orifice near apex. Length 2.35 mm.; width, .9 mm.

♀ : Differs noticeably from male in structure of pronotum and genital orifice. The pronotum of female is not produced to form the hood as in male, but is subquadrate; the middle femora are not strongly constricted at base; the last ventral segment of the female is entire, feebly constricted approaching apex. Length, 2.75 mm.; width, 1.2 mm.

*Holotype* male, *allotype* female, captured six miles west of Beaumont, Riverside County, CALIFORNIA (Main road from Riverside to Beaumont), IV-5-1941, from flowers of *Rhus* sp., by the author in whose collection they are deposited. Twenty-six paratypes (16 ♀, 10 ♂) with same data are deposited as follows: One pair each in collections of The Academy of Natural Sciences of Philadelphia, C. A. Frost, California Academy of Sciences, and R. G. Dahl; one female each in the collections of Mr. J. J. du Bois, Mr. K. S. Hagen, Mr. W. F. Barr, Mr. Borys Malkin and Dr. W. J. Brown; the balance remain in the writer's collection.

In the series of twenty-eight specimens there appears to be very little variation other than size and the normal sexual differences. The structure of the pronotum, middle femora, and last ventral segment greatly facilitate sex determination. The types represent close to the maximum of size which ranges from 2 mm. to 2.75 mm. The males average slightly larger than the females. This species is one of the smallest North American members of the Galerucinae known to the writer and can be easily identified from the generic and specific descriptions. Figures of the salient characters of this species as well as the following one are included to enhance speedy determination.

**Serraticollis parkeri** new species.

Size, form, and color of S. *rhois;* pronotum less elongate and less arcuate in male, transverse in female; middle femora of male evenly, gradually tapering to base; elytral intervals not convex. Average length, 2 mm.

♂: Head feebly punctate, vertex alutaceous, a few relatively long setae between upper limits of eyes; antennae reaching near basal third of elytra, segments subequal in length, outer segments slightly tumesent to form a feeble club.

Pronotum rufous, one-fourth longer than wide, widest at apical two-fifths; surface sparsely punctate on disc, more densely and coarsely punctate at apex; ante-basal, transverse impression well developed; lateral margins finely serrate; the apical angles produced to form a prominent, blunt denticle; apical margin feebly arcuate, finely margined; surface sparsely, finely pubescent.

Elytra rufotestaceous; punctures moderate sized, striately

arranged, the intervals flat with minute setigerous punctures, the setae directed caudad but obliquely so; apex truncate.

Body beneath alutaceous and rufotestaceous in great part, the anterior and lateral surface of prothoracic sclerites smooth and paler—rufous; surface sparsely, finely punctate, finely pubescent; last ventral segment with crescentiform genital orifice near apex; legs rufous; the mesothoracic femora evenly, gradually constricted to base. Length, 2 mm.; width, 0.8 mm.

♀: Similar to male but with pronotum slightly wider than long; last ventral segment feebly constricted to apex, with genital orifice at apex. Length, 2 mm., width, 0.8 mm.

*Holotype* male, *allotype* female, collected at Globe, ARIZONA, IV-25-1933, on *Rhus,* by Mr. F. H. Parker are in the author's collection. Four paratypes (3 ♂, 1 ♀) with same data are in the collection of Mr. Parker in whose honor the species is named.

There seems to be no appreciable variation among the six specimens at hand other than the normal sex differences.

*Parkeri* superficially resembles *rhois* but is much more feebly sexually dimorphic. The greatest differences are present in the males. The differences in the structure of the pronotum (more strongly produced and arcuate apically in *rhois*) and the meso-thoracic femora (strongly constricted on lower edge near base in *rhois*) will readily separate the two species. However, the elytral punctures are coarser in *rhois* which condition makes the intervals more convex than in *parkeri.* The elytral setae in the former are longer and parallel to striae where in the latter they are externally oblique to the striae. The females seem to be more coarsely sculptured and with pronotum a bit less transverse in *rhois.* Otherwise they are quite similar in the two forms.

## OBITUARY

Prof. J. J. Davis contributes to *Science* for November 28, 1941, an obituary notice of Prof. JAMES TROOP, emeritus professor of entomology at Purdue University since 1920. Prof. Troop was born at Bennington, New York, March 14, 1853, and died at Urbana, Illinois, October 14, 1941. He became connected with Purdue in 1884, and was active in teaching and horticulture.

## The Corn Lanternfly in New Jersey (Homopt.: Fulgoridae).

Those who have observed serious outbreaks of the corn lanternfly (*Peregrinus maidis* (Ashmead)) in the Southern States cannot but have been impressed by its capacity for very serious injury to growing corn, which may even result in complete destruction of a crop. An instance was observed by the senior author in the Lake Okeechobee region of Florida in February and March, 1937, when scarcely a usable ear of corn was harvested because of injury of the growing plants by this insect. Fortunately *Peregrinus* rarely invades the Northern States and, consequently, records of outbreaks in the North are of considerable interest.

During the summer of 1939, this insect was present in New Jersey, where no previous records of its occurrence were known. Infestations were general and of light or medium severity during August and September. By late fall populations of considerable size were observed in late sweet corn. It was particularly abundant in a field of Golden Cross Bantam sweet corn at Rancocas, observed on September 17. As usual, it fed in colonies located largely in protected positions such as in the bud of younger plants and between the ear and the stalk or between the leaves and the stalk of older plants. At the mentioned date infestation was sufficient to cause the hands of one harvesting corn ears to become covered with honeydew. However, in no instance was the infestation sufficient to cause serious injury to the plants other than possibly slight stunting.

In 1940, *Peregrinus* was observed only once, in a locality about 2 miles east of Old Bridge, New Jersey, attacking plants of late Golden Cross Bantam corn.

It is of interest to note that the first recorded invasion of *Peregrinus* in New Jersey, in 1939, coincided with one of the most serious infestations by *Laphygma frugiperda* S. & A. so far recorded in corn in the Northeast. It seems probable that the circumstances that resulted in the unusual invasion of the latter insect were also those that resulted in the invasion by *Peregrinus*.—G. W. Barber, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, and Bailey B. Pepper, New Jersey Agricultural Experiment Station.

## Sponge Rubber: Its Use in Shipping Containers.

When shipping insects mounted on pins or on card points attached to pins, it is necessary to firmly fix each pin in the

bottom board of the shipping container. Subsequent removal of the firmly imbedded pins is frequently difficult especially when the specimens are numerous and crowded. Forceps employed in the operation must be attached at the base of the pin, and this placement is often hazardous with crowded specimens. Sponge rubber (the type used in kneeling pads) substituted for the usual pinning base has been found to eliminate these difficulties. Specimens firmly fastened in this material can be removed without the aid of forceps or if the latter are employed they can be attached on the upper portion of the pin. Danger of injury to any of the specimens is lessened, and at the same time the speed of transference is greatly increased. In all respects sponge rubber appears superior to other pinning media.

In addition to its use in shipping containers, the material may also be employed in the temporary pinning of insects for study. In some instances insect boxes may be lined with sponge rubber. The ease with which insect pins may be inserted in or removed from the rubber makes it an excellent pinning base. It is durable; samples giving satisfactory results after four years of use.

No claim for originality in this use of sponge rubber is made; the writer has found the material so satisfactory for use in shipping containers that it was felt a note on the subject might possibly be of value to those concerned with specimen transportation. The rubber may be purchased at any general store at a nominal price.—H. F. SCHOOF, N. C. State College, Raleigh, North Carolina.

## Instituto Español de Entomologia.

Herewith we have the honor to communicate to you the foundation of the Instituto Español de Entomologia in Madrid, which now contains the former Section of Entomology of the Museo Nacional de Ciencias Naturales with all the collections, library and publications that the Section mentioned formerly possessed. Please direct your correspondence and exchange of publication to the new Institute Palacio del Hipódromo, Madrid. The Institute hopes to continue the best relations with you as formerly for the advantage of both.—THE DIRECTOR, Gonzalo Ceballos y Fernandez de Cordoba.
Madrid, May, 1941.

**Livia marginata Patch attended by Ants (Homoptera: Chermidae; Hymen.: Formicidae).**

During the last week of August, 1939, in Lakeville, Connecticut, I observed workers of the ant *Formica pallide-fulva nitidiventris var. fuscata* Emory upon the stem of a tall species of goldenrod (*Solidago* sp?).

Upon closer examination, the ants proved to be attending nymphal Chermids, apparently in the final instar. These were to be found in herds on the under sides of the leaves, with a few individuals ranged along the stem. These young Chermids reached the imago stage (in a breeding cage) during the first week of September. They proved to be *Livia marginata* Patch.

The nymphs evidently secreted large quantities of honey-dew as the gaster of the attendant ants was quite distended.—ALBRO TILTON GAUL, Brooklyn, New York.

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**On the Relationship between the Moth, Camptylochila americalis Gn. and Formica rufa obscuripes Forel (Lepid.: Noctuidae; Hymen.: Formicidae.).**

Recently, F. Smith (1941 Entomological News: 109) reported finding the lepidopterous larva, *Camptylochila* (*Epizeuxis*) *americalis* Gn. in the mounds of *Formica rufa obscuripes* Forel, and the writer is able to confirm this observation. The writer reported (1929 Proc. Entomological Soc. of British Columbia 26: 44-46) how he found the lepidopterous larvae which subsequently to that publication were identified for him. The writer is able, further, to add some information on the relation between *C. americalis* in the adult stage and the ants for he has frequently, at sundown, seen moths which were apparently of that species enter the mounds. The moths dropped freely to some entrance hole in the mound, closed their wings and walked in apparently without any attention from the ants. Similar tolerance on the part of the ants to moths, which were newly emerged, was not observed by F. Smith.—GEOFFREY BEALL, Dominion Entomological Laboratory, Chatham, Ontario.

## List of Titles of Publications Referred to by Numbers in Entomological Literature in Entomological News.

1. Transactions of The American Entomological Society. Philadelphia
2. Entomologische Blätter, red. v. H. Eckstein etc. Berlin.
3. Annales Sci. Naturelles, Zoologie, Paris.
4. Canadian Entomologist. London, Canada.
5. Psyche, A Journal of Entomology. Boston, Mass.
6. Journal of the New York Entomological Society. New York.
7. Annals of the Entomological Society of America. Columbus, Ohio.
8. Entomologists' Monthly Magazine. London.
9. The Entomologist. London.
10. Proceedings of the Ent. Soc. of Washington. Washington, D. C.
11. Deutsche entomologische Zeitschrift. Berlin.
12. Journal of Economic Entomology, Geneva, N. Y.
13. Journal of Entomology and Zoology. Claremont, Cal.
14. Archivos do Instituto Biologico, Sao Paulo.
15. Annales Academia Brasileira de Sciencias. Rio de Janeiro.
17. Entomologische Rundschau. Stuttgart, Germany.
18. Entomologische Zeitschrift. Frankfurt-M.
19. Bulletin of the Brooklyn Entomological Society. Brooklyn, N. Y.
21. The Entomologists' Record and Journal of Variation. London.
22. Bulletin of Entomological Research. London.
23. Bolletino del Lab. di Zool. gen. e agraria della Portici. Italy.
24. Annales de la société entomologique de France. Paris.
25. Bulletin de la société entomologique de France. Paris.
27. Bolletino della Societa Entomologica Italiana. Genova.
28. Ent. Tidskrift utgifen af Ent. Föreningen i Stockholm. Sweden.
29. Annual Report of the Ent. Society of Ontario. Toronto, Canada.
30. Archivos do Instituto de Biologia Vegetal. R. d. Janeiro.
31. Nature. London.
32. Boletim do Museu Nacional do Rio de Janiero. Brazil.
33. Bull. et Annales de la Société entomologique de Belgique. Bruxelles
34. Zoologischer Anzeiger, hrsg. v. E. Korschelt. Leipzig.
36. Trans. Royal Entomological Society, London. England.
37. Proceedings of the Hawaiian Entomological Society. Honolulu.
38. Bull. of the Southern California Academy of Sciences. Los Angeles.
39. The Florida Entomologist. Gainesville, Fla.
40. American Museum Novitates. New York.
41. Mitteilungen der schweiz. ent. Gesellschaft. Schaffhausen, Switzerland.
42. The Journal of Experimental Zoology. Philadelphia.
43. Ohio Journal of Sciences. Columbus, Ohio.
44. Revista chileña de historia natural. Valparaiso, Chile.
46. Zeitschrift für Morphologie und Ökologie der Tiere. Berlin.
47. Journal of Agricultural Research. Washington, D. C.
50. Proceedings of the U. S. National Museum. Washington, D. C.
51. Notulae entomologicae, ed. Soc. ent. Helsingfors. Helsingfors, Finland.
52. Archiv für Naturgeschichte, hrsg. v. E. Strand. Berlin.
53. Quarterly Journal of Microscopical Science. London.
55 Pan-Pacific Entomologist. San Francisco, Cal.
57. La Feuille des Naturalistes. Paris.
58. Entomologische Berichten. Nederlandsche ent. Ver. Amsterdam.
59. Encyclopédie entomologique, ed. P. Lechevalier. Paris.
60. Stettiner entomologische Zeitung. Stettin, Germany.

61. Proceedings of the California Academy of Sciences. San Francisco.
62. Bulletin of the American Museum of Natural History. New York.
64. Zeitschrift des österr. entomologen-Vereines. Wien.
65. Zeitschrift für angewandte Entomologie, hrsg. K. Escherich. Berlin.
67. University of California Publications, Entomology. Berkeley, Cal.
68. Science. New York.
69. Physis. Revista Soc. Argentina Cien. Nat. Buenos Aires.
70. Entomologica Americana, Brooklyn Entomological Society. Brooklyn
71. Novitates Zoologicae. Tring, England.
72. Revue russe d'Entomologie, Leningrad, USSR.
73. Mem. Instituto Butantan. Sao Paulo, Brazil.
75. Annals and Magazine of Natural History. London.
77. Comptes rendus heb. des séances et mémo. de la soc. de biologie. Paris.
78. Bulletin Biologique de la France et de la Belgique. Paris.
79. Koleopterologische Rundschau. Wien.
82. Bulletin, Division of the Natural History Survey. Urbana, Illinois.
83. Arkiv för zoologie, K. Svenska Vetenskapsakademien i. Stockholm.
84. Ecology. Brooklyn.
87. Archiv für Entwicklungsmechanik der Organ., hrsg. v. Roux. Leipzig.
88. Die Naturwissenschaften, hrsg. A. Berliner. Berlin.
89. Zoologische Jahrbücher, hrsg. v, Spengel. Jena, Germany.
90. The American Naturalist. Garrison-on-Hudson, New York.
91. Journal of the Washington Academy of Sciences. Washington, D. C.
92. Biological Bulletin. Wood's Hole, Massachusetts.
93. Proceedings of the Zoological Society of London. England.
94. Zeitschrift für wissenschaftliche Zoologie. Leipzig.
95. Proceedings of the Biological Soc. of Washington, Washington, D. C.
97. Biologisches Zentralblatt. Leipzig.
98. Le Naturaliste Canadien. Cap Rouge, Chicoutimi, Quebec.
101. Tijdschrift voor entomologie. Nederland. Ent. Ver., Amsterdam.
102. Entomologiske Meddelelser, Entomologisk Forening, Copenhagen.
103. Journal of the Kansas Entomological Society, Lawrence, Kansas
104. Revista de la Sociedad entomologica Argentina, Buenos Aires.
105. Revista de Entomologia, Rio de Janeiro, Brazil.
106. Anales Sociedad Cientifica Argentina, Buenos Aires.
107. Proc., Royal Entomological Society, London.
108. Revista, Col. Nac. Vicente Rocafuerte, Guayaquil.
109. Arbeiten uber morpholog. und taxonom. ent. aus Berlin-Dahlem.
110. Arbeiten ueber physiolog. u. angewandte ent. aus Berlin-Dahlem.
111. Memorias do Instituto Oswaldo Cruz. Rio de Janeiro.
112. Anales del Instituto de Biologia Mexico.
114. Occasional Papers of the Museum of Zoology, University of Michigan.
115. Memorias de la Soc. Cubana de Hist. Nat. Havana, Cuba.
116. Parasitology. Ed. Keilin and Hindle. London.
117. Microentomology, Stanford University.
118. Ward's Ent. & Nat. Sci. Bull., Rochester, N. Y.
119. American Midland Naturalist, Notre Dame, Ind.
120. The Great Basin Naturalist, Provo, Utah.
121. Ciencia, Mexico City.
122. Revista Museo de la Plata, Buenos Aires.
123. Indian Journal of Entomology, New Delhi.

# Current Entomological Literature

COMPILED BY THE EDITORIAL STAFF.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. All continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

**Note.** References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

**The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of Entomological News for 10c. The number of, or annual volume, and in some cases the part, heft, &c., the latter within ( ) follows; then the pagination follows the colon :**

**Papers published in the Entomological News are not listed.**

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**Wanted**—Specimens of the genus Trox from North America. Will exchange or determine for duplicate material. Mark Robinson, 231 Cherry St., Sharon Hill, Pennsylvania.

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